

THE ENDOCRINOLOGIST

THE MAGAZINE OF THE SOCIETY FOR ENDOCRINOLOGY

Transcending borders: Endocrinology is international

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A word from THE EDITOR...



In a technologically advanced era, there is welcome comfort to be had from the xeroxed fanzine that is the election flyer. Distilling complex economic and philosophical thought into natty alliterative tag lines, these are hand-crafted homages to a simpler time that only make sense if you've had a few drinks and are squinting from a distance.

In our house, there is a competition to find the picture or slogan with most pathos. Vote for me because I look sad next to a messy bin. See how well I point at a pothole – I can be trusted on the big issues. I look uncomfortable in a yellow tabard and hard hat, so let me run the economy. More good things, fewer bad things, no additional cost to you ... and a free bottle of Sprite. Or maybe that one was a pizza leaflet.

I guess it's just hard to get your message across without some wiseacre having a pop. At a recent editorial meeting, we discussed what purpose the *The Endocrinologist* should have. No slick mission statement was forthcoming, you'll be relieved to hear, but we did agree that it should be a voice representative of and for the Society, reactive to what is topical, fascinating and concerning. What a delight, then, that this issue showcases talent and activity from around the globe.

Catherine Ball and Mark McCarthy have written excellent pieces on the repercussions of Brexit upon medical research. Our own correspondents, Drs Annamalai and Kandasamy, reveal how endocrinology is practised in India, while colleagues from Imperial College London highlight an astonishing diabetes centre in Abu Dhabi. Clinicians in training can find out what it is like to train in the USA, and also get an insight into why Scandinavians are so good at curating large population datasets.

Finally, a small request. We have space for another member (scientist or clinician) on our Editorial Board. I am especially keen to get representation from outside the South East and to keep those voices varied and distinct. Contact endocrinologist@endocrinology.org if you are interested in joining the team.

Enjoy the summer, wherever you are going.

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Become a contributor... Contact the Editorial office at endocrinologist@endocrinology.org

The Society welcomes news items, contributions, article suggestions and letters to the Editor. We would also like to hear your feedback on this issue of the magazine.

Deadline for news items for the Autumn 2017 issue: **10 July 2017**.

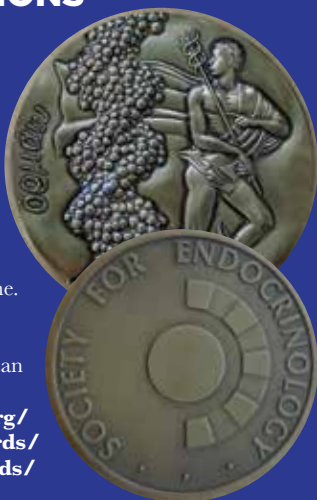
Deadline for news items for the Winter 2017 issue: **5 October 2017**.

Front cover image ©SHUTTERSTOCK

CALL FOR MEDAL NOMINATIONS CLOSING SOON

Recognising excellence in endocrinology: nominations for recipients of the Society's seven medals must be submitted by 16 June.

Full details and the nomination forms can be found at www.endocrinology.org/grants-and-awards/prizes-and-awards/medals.



YOUR LAST CHANCE TO NOMINATE NEW COMMITTEE MEMBERS

Don't forget! Vacancies are arising at the end of the year on the following Society committees:

- Clinical
- Nurse
- Programme
- Public Engagement
- Science
- Early Career Steering Group
- Corporate Liaison Board

Send your nomination forms to the Society office by 30 June. Full details and forms can be found at www.endocrinology.org/about-us/governance/call-for-nominations.

NEW ENDOCRINE NETWORK CONVENORS NEEDED

We are seeking applications for new convenors for two of our Endocrine Networks. Duncan Bassett is stepping down as Clinical Convenor of the Bone and Calcium Network, and Eleanor Davies is finishing her role as the Science Convenor for the Adrenal and Cardiovascular Network. We thank them both for their contributions to our work.

Nominations from Network members are sought for both posts. The roles will commence in November 2017, for a period of 4 years. The deadline for nominations is 30 September 2017. Find out more at www.endocrinology.org/membership/endocrine-networks.

CONGRATULATIONS

We congratulate Society members Stafford Lightman (Bristol) and Krishna Chatterjee (Cambridge), who have recently been elected as Fellows of the Royal Society for their outstanding contributions to science. Professor Lightman was elected for his work on the hypothalamic-pituitary-adrenal axis, which has fundamentally changed our understanding of 24-hour body clock control. Professor Chatterjee was recognised for his discoveries of genetic disorders of thyroid gland formation, regulation of hormone synthesis and hormone action, which have advanced our knowledge of thyroid function.



Stafford Lightman



Krishna Chatterjee

We also congratulate Society members Jason Carroll (Cambridge) and Brian Walker (Edinburgh), who have been elected as Fellows of the Academy of Medical Sciences, in recognition of their contributions to biomedical and health research, the generation of new knowledge in medical sciences and its translation into benefits to society.

WITH REGRET

Society member Stephen Jeffcoate, former Professor of Biochemical Endocrinology at Chelsea Hospital for Women, London (1975–1986), and Head of the Endocrinology Division of the National Institute for Biological Standards and Control, South Mimms (1986–1993), died unexpectedly on the Isle of Man on 31 March 2017 at the age of 77. A full obituary will follow in our next issue.

FOND FAREWELL

The Society has bid a fond farewell to Debbie Willis of our Professional Affairs Team.

Debbie began work with the Society in 2002 on a freelance basis. She joined the staff in 2009, initially as Professional Affairs Officer, before progressing to Policy and Professional Affairs Manager. As many of you will know, she has made a huge contribution to our work, in particular through her work with our Clinical Committee, and leading our research and audit projects and policy work.

Debbie left in March to take up a new position with the Medical Research Council as Board Manager. We wish her all the best.

SOCIETY CALENDAR

6–8 November 2017
SfE BES CONFERENCE
Harrogate

12 March 2018
SfE NATIONAL CLINICAL CASES MEETING
London

16–18 April 2018
CAREER DEVELOPMENT WORKSHOP
Birmingham

16–18 April 2018
CLINICAL UPDATE
Birmingham

16–17 April 2018
ENDOCRINE NURSE UPDATE
Birmingham

www.endocrinology.org/events for full details

SOCIETY SUPPORTED EVENTS

27 August–1 September 2017
NUCLEAR RECEPTORS & EPIGENETIC CHANGES IN DISEASE & AGEING
Spetses, Greece

29 August–2 September 2017
22ND WORLD CONGRESS OF THE INTERNATIONAL FEDERATION FOR THE SURGERY OF OBESITY & METABOLIC DISORDERS
London

GRANT AND PRIZE DEADLINES

15 June 2017
REGIONAL CLINICAL CASES MEETING GRANTS

16 June 2017
MEDAL NOMINATIONS

16 June 2017
ENDOCRINE NURSE AWARD

14 June–12 July 2017
UNDERGRADUATE ACHIEVEMENT AWARDS

31 July 2017
SfE BES REGISTRATION GRANTS

15 August 2017
TRAVEL GRANTS

30 September 2017
PUBLIC ENGAGEMENT GRANTS

31 October 2017
PRACTICAL SKILLS GRANTS

27 November 2017
EARLY CAREER GRANTS

27 November 2017
EQUIPMENT GRANTS

www.endocrinology.org/grants for full details of all Society grants and prizes

SOCIETY FOR ENDOCRINOLOGY OFFICIAL JOURNALS

Society members have free access to the current content of *Journal of Endocrinology*, *Journal of Molecular Endocrinology*, *Endocrine-Related Cancer* and *Clinical Endocrinology* via the members' area on the Society home page, www.endocrinology.org. *Endocrine Connections* and *Endocrinology, Diabetes & Metabolism Case Reports*, the Society-endorsed case reports publication, are open access (OA) and free to all.



JOURNAL OF ENDOCRINOLOGY

High fat feeding and variable insulin responses in C57BL/6 substrains

C57BL/6 mice are widely used in metabolic research as a model of diet-induced obesity. However, due to their availability from many different vendors, phenotypic differences have arisen, as a result of both genetic and environmental variability. This adds a level of complexity to the interpretation of metabolic parameters, especially when comparing studies using mice from different vendors.

To shed further light on this issue, Hull *et al.* performed a comprehensive analysis of *in vitro* and *in vivo* insulin secretory responses following low or high fat feeding in six C57BL/6 substrains obtained from different vendors within the USA and

Australia. The authors found that the *in vitro* but not the *in vivo* insulin response was different in low fat fed mice between C57BL/6J and C57BL/6N substrains. In contrast, the *in vivo* insulin response following high fat feeding was different among C57BL/6N but not C57BL/6J substrains. This variability was not due to differences in body weight, adiposity, food intake or the area of insulin-secreting pancreatic β -cells.

The authors advise caution in extrapolating findings from *in vitro* studies to the *in vivo* situation and call for care in selecting the appropriate C57BL/6 substrain for studies in metabolic research.

Read the full article in *Journal of Endocrinology* **233** 53–64

JOURNAL OF MOLECULAR ENDOCRINOLOGY

Regulation of physiology by transcriptional coregulatory RIP140

Transcriptional coregulators act as gate keepers of gene expression, repressing or activating gene expression through modulation of transcription factor activity.

In this review, Nautiyal explores the multifaceted role of RIP140, an important transcriptional co-regulator for many physiological processes including

reproduction and metabolism. The unique functional aspects of RIP140 actions are explored (it can function as both a coactivator and corepressor) and its roles within physiology are described.

Read the full article in *Journal of Molecular Endocrinology* **58** R147–R158

ENDOCRINE-RELATED CANCER

Androgen receptor in fibroblasts influences cancer cell 'stemness'

It is well established that the proliferation and survival of prostate cancer cells are dependent on androgen receptor (AR)-mediated pathway activation. Subpopulations of prostate cancer cells have recently been identified with stem-cell like properties, and it has been suggested that these may be the origin of treatment-resistant prostate cancer.

Cancer-associated fibroblasts (CAFs) are the predominant cell type in stromal tissue derived from prostate cancer. CAFs express ARs, suggesting a role for this

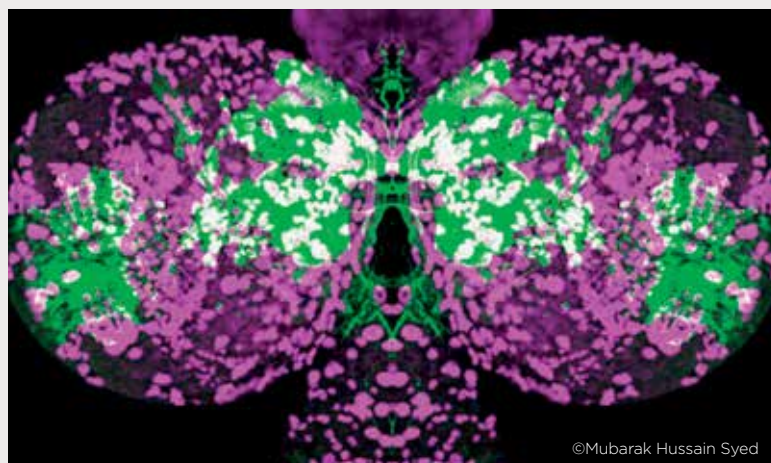
cell type in prostate cancer development and disease progression.

This study by Liao *et al.* utilised a mixed species co-culture system of mouse-derived CAFs and human prostate cancer cell lines to dissect the functional role of CAFs in prostate cancer cell line growth and cell 'stemness'. The authors show that suppression of CAF AR promotes the 'stemness' of prostate cancer cell lines via cytokine production, providing thought-provoking questions about therapeutic targeting strategies for patients with prostate cancer.

Read the full article in *Endocrine-Related Cancer* **24** 157–170

ENDOCRINE HIGHLIGHTS

A summary of papers from around the endocrine community that have got you talking.



©Mubarak Hussain Syed

Fly brains?

The ability of stem cells to generate neuronal diversity has fascinated researchers, but the mechanisms that drive these pathways have so far remained elusive.

Syed *et al.* looked at embryonic development in *Drosophila* to examine the sequence of gene expression and the mechanism by which the neural stem cells switch from expressing one gene to the next. They found that a steroid hormone called ecdysone is critical to triggering one of these vital transitions in gene expression during early brain development. Ecdysone appears to alter expression in a number of genes, downregulating *Chinmo/Imp* and activating *Syncrip*. The timing of this is important, as it coincides with an important time frame in brain development, where the number and identity of different neurones required to complete brain formation are set.

This is the first example of hormones regulating time-sensitive gene transitions during neurogenesis. The researchers hope this discovery will provide some insight into the role of hormone signalling in neurological diseases.

Read the full article in *eLife* **6** e26287 (OA)

CLINICAL ENDOCRINOLOGY

Reproducibility of thyroid nodule shear wave elastography

The holy grail in management of thyroid nodules concerns how to determine benign from malignant nodules, to prevent unnecessary thyroid operations.

Shear wave elastography (SWE) is an ultrasonography technique using 2D and 3D images supported by elasticity measurements. SWE is thought to be more reproducible than earlier elastographic methods. However, Swan *et al.* report inter- and intrarater agreement to be low, with inter-rater agreement being lowest for malignant as opposed to benign nodules.

Diagnostic accuracy as assessed by ROC (receiver operating characteristic) analysis showed weak or no association between histological diagnosis and SWE.

In addition, there are exclusion criteria for SWE: isthmus nodules, due to high risk of artefacts from trachea, cannot be assessed by SWE, and nor can cystic nodules, as shear waves do not travel through fluid.

The authors conclude that SWE cannot differentiate benign from malignant nodules. It seems perhaps that the holy grail will be found, in part, in the recent statement from the US Preventive Services Task Force, which recommends against screening for thyroid cancer in asymptomatic adults (*JAMA*, 9 May 2017). Fewer US thyroids will result in far fewer thyroid nodules to assess.

Read the full article in *Clinical Endocrinology* **86** 606–613

ENDOCRINOLOGY, DIABETES & METABOLISM CASE REPORTS

Novel test for GnRH function

Primary amenorrhoea, the failure to reach menarche, can be caused by a number of conditions. Accurate diagnosis of the underlying cause can prove difficult despite the plethora of current endocrine testing.

Vimalesvaran *et al.* describe an 18-year-old female who presented with primary amenorrhoea but no other significant symptoms. Initial investigations did not show any clinical or biochemical hyperandrogenism or any radiological evidence of polycystic ovaries. However, a raised luteinising hormone (LH) level was identified, suggestive of polycystic ovarian syndrome (PCOS). To assess whether

this was indeed the case, the authors used a novel hormone, kisspeptin, to assess hypothalamic GnRH function by monitoring gonadotrophin response as a surrogate marker of GnRH release. This confirmed a diagnosis of PCOS.

This case highlights the need to consider PCOS as a differential diagnosis for patients presenting with primary amenorrhoea, and the potential of kisspeptin to act as a novel tool to test GnRH activity in patients presenting with these conditions.

Read the full article in *Endocrinology, Diabetes & Metabolism Case Reports* EDM160117 (OA)

ENDOCRINE CONNECTIONS

New mouse model for MEN1

Multiple endocrine neoplasia type 1 (MEN1) is a genetic disease affecting the *MEN1* gene, which encodes menin, a tumour suppressor. People with MEN1 tend to develop tumours in the parathyroid glands, and neuroendocrine tumours in the pancreatic islets and anterior pituitary. The exact role of menin at the start of the tumourigenesis process is not yet clear.

In this paper, Lines *et al.* report on the development of a new MEN1 mouse model. This was developed through crossbreeding mice with the *MEN1* gene

floxed by LoxP sites (*Men1^{LoxP/LoxP}*), with mice expressing tamoxifen-inducible Cre recombinase under the control of the rat insulin promoter (*RIP2-CreER*). This resulted in a new temporally controlled conditional mouse model (*Men1^{LoxP/LoxP}/RIP2-CreER*), in which the development of pancreatic β-cell NETs can be induced by tamoxifen. The team hope this model will aid research into early events in the development this type of tumour in MEN1.

Read the full article in *Endocrine Connections* **6** 232–242

The more potent effect of KP-54 compared with KP-10 *in vivo*

Kisspeptins regulate the onset of puberty by stimulating the release of gonadotrophin-releasing hormone (GnRH). In humans, kisspeptins can be derived from a 145-amino acid precursor to form smaller kisspeptins, including kisspeptin 54 (Kp-54) and kisspeptin 10 (Kp-10).

Here, d'Anglemon de Tassigny *et al.* compared the effects of systemic Kp-54 and Kp-10 administration on luteinising hormone (LH) release in male mice, and investigated the ability of both these peptides to activate GnRH neurones beyond the blood brain barrier (BBB). Systemic administration of Kp-10 failed to produce the sustained LH release seen with Kp-54. Additionally, although central delivery of Kp-54 and Kp-10 induces similar levels of depolarisation in GnRH neurones, peripherally administered Kp-54 could activate GnRH neurones, while Kp-10 could not.

This suggests that Kp-54 is more able to cross the BBB than Kp-10. These findings are particularly relevant for *in vitro* fertilisation protocols, where kisspeptins are now being used to trigger oocyte maturation.

Read the full article in *PLoS One* **12** e0176821

Steroid metabolome reveals glucocorticoid excess in primary aldosteronism

Arlt *et al.* analysed the urine steroid metabolome in 174 newly diagnosed patients with primary aldosteronism (PA). The eye-catching data concern the high prevalence of glucocorticoid production in this cohort, as measured by urinary steroid profile (USP).

Because of this finding, 46 patients were investigated in more detail. A few of these individuals had abnormal overnight dexamethasone suppression test (ONDST) preoperatively (data not given). However, 29% failed a standard 30-minute short synacthen test (SST) at 10–14 days post-surgery, some having a 30-minute cortisol after synacthen of 200nmol/l. The authors did not report whether this was associated with clinical features of adrenal insufficiency post-operatively. As dexamethasone (8mg) is used as an anti-emetic in some anaesthetic protocols, this may have, in part, protected from this.

These data suggest, therefore, that a significant number of patients will have adrenal insufficiency post-adrenalectomy for PA, and we should be alert to this clinically. It is not clear how we should screen preoperatively, as ONDST did not seem to identify this cohort. Should we therefore obtain a USP in all patients with mineralocorticoid excess to identify this cohort, followed by an SST post-operatively? Or would a 9.00am cortisol measurement several days post-operatively predischarge be sufficient in the first instance? Food for thought...

Read the full article in *JCI Insight* **2** e93136 (OA)



©L. Brian Stauffer

'Finding Nemo' dads provide top level care

The colourful anemonefish, *Amphiprion ocellaris*, may be better known to many of us as 'Nemo' from the well-loved Disney film. However, it seems that real life does sometimes mirror the movies in the latest research on parental care in this species.

De Angelis *et al.* looked at the effect of the hormones isotocin (IT) and arginine vasotocin (AVT) on male parental care. In contrast to most species, male anemonefish are the main parental caregivers, expending vast efforts to guard their eggs.

Isotocin (a homologue of oxytocin in mammals) was found to play a critical role in paternal care. High levels increased male parental behaviours (such as nips, fanning the eggs, and the proportion of time in the nest) whereas introducing an IT agonist decreased these behaviours, but did not affect aggression. Blocking AVT, on the other hand, had the opposite effect, increasing parental behaviours. High levels of AVT have previously been implicated in aggressive behaviours in these fish.

The researchers hypothesise that blocking AVT signalling results in the fish reducing the amount of time spent on vigilance and nest defence, allowing more effort to be directed towards parental care.

Read the full article in *Hormones & Behavior* **90** 113–119

BREXIT: CHALLENGES AND OPPORTUNITIES FOR UK MEDICAL RESEARCH

WRITTEN BY CATHERINE BALL



Let's rewind to 23 June last year. I think it's fair to say that few people outside the science community had the impact on medical research in their minds when they entered the polling booth. It probably wasn't the first thing that came to mind on hearing the result the next day either. However, UK medical research faces significant challenges and opportunities as a result of the UK's decision to leave the EU.

Fast forward to the present day. Article 50 has been triggered and negotiations to develop the UK's future relationship with the EU have begun. The Association of Medical Research Charities (AMRC) has been working to gather the views of the medical research charity community and put forward the voice of the sector.

AMRC is the national membership body for leading medical and health charities funding research in the UK. We represent 140 medical research charities of all shapes and sizes, including the Society for Endocrinology. In 2015, our members invested over £1.4 billion of research funding in the UK: more than either the Medical Research Council or the National Institute for Health Research. They funded the salaries of over 15,000 researchers in the UK and 190,000 people took part in clinical trials supported by the charities.

FIVE KEY AREAS

The EU influences UK medical research in a number of different ways. AMRC have identified five key areas of focus:

1. Funding programmes and collaboration

Alongside financial support from charities, money from the EU is one of the four sources of public funding that underpin the UK's thriving medical research sector. Horizon 2020 is the EU's current Framework Programme for science and research, and the principal way that it funds science. The UK has received approximately €240 million from health-related Horizon 2020 projects so far – around 18% of the total awarded across EU member states. In terms of funding for science and research as a whole, the UK is currently the second highest recipient of Horizon 2020 funding.

2. Movement of people

EU freedom of movement rules mean that there is easy movement of EU citizens across EU member states. Science is intrinsically international and collaborative, so the passage of researchers, innovators and specialist technicians across the EU has arguably given the UK a competitive advantage globally, by opening up access to skills and international networks. Researchers from the EU play a key part in UK medical research. For example, around a fifth of British Heart Foundation-funded principal investigators have EU member state nationality. Movement is important in both directions; without easy movement between the UK and EU countries, UK researchers could also lose opportunities to train and develop specialist skills abroad.

3. Regulation of research

EU regulatory frameworks, spanning from clinical trials to data protection to the use of animals in research, help build consistent research standards between countries. These shared frameworks can facilitate the exchange of ideas, research samples and data. This can be particularly important for research into rare disease populations where multination, multicentre studies are the only way to access the number of patients needed for robust research.

4. Regulation of medicines and technologies

Regulatory co-operation on medicines and medical technology via the European Medicines Agency (EMA) provides stability and certainty for the life sciences sector. In the global pharmaceutical market, national systems of medicines regulation can result in slower access to treatments for patients. Drugs in Australia and Canada typically come to market 6–12 months later on average than those in the EU and USA. EMA represents 25% of the global pharmaceutical sales market, compared with the UK's 3% share in isolation. The UK's participation in EU regulatory processes and access to key databases focusing on medicines and medical technologies benefits innovation, public health and patients in the UK and beyond. In areas of emerging technologies, there may be opportunities for a more adaptable regulatory approach.

5. EU-facilitated networks

All of the areas identified above facilitate collaboration. The EU catalyses networks and joint working across member states, Europe and the globe. These connections are particularly vital for small and dispersed research communities, and many disease areas have specific European networks.

STRIVING TO THRIVE

So, how do we ensure that UK medical research continues to thrive and the community can take advantage of potential opportunities?

Working with our 140 members, including the Society for Endocrinology, AMRC has developed a position, and we are working to ensure it is heard by key stakeholders. At its core is that there must be no impact on patient access to treatments. In the Brexit negotiations, we're calling on the UK Government to:

- Seek the closest achievable affiliation with EU research programmes that allows for our continued involvement. As well as maintaining access to Horizon 2020, the UK must be able to participate in and

help shape future programmes including Framework Programme 9 (FP9).

- Ensure that patients must be able to continue being part of clinical trials and have access to new therapies.
- Continue to co-operate with the EU regulatory processes and key databases, whilst recognising that in areas of emerging technologies there may be opportunities for a more adaptable regulatory approach, while protecting patient safety.
- Develop a transitional arrangement with the EU on regulatory frameworks and databases to ensure a smooth transition and patient safety.
- Urgently clarify the status of EU nationals in the UK amidst concerns that uncertainty about the status of research and healthcare professionals in the UK is damaging the UK's reputation and attractiveness as a place to do research.
- Adopt a new and simple immigration framework for those involved in science and research, including researchers, skilled technicians and healthcare professionals, in order to continue to attract and retain these valued individuals within the UK life sciences community.

'We are working to ensure our position is heard ... At its core is that there must be no impact on patient access to treatments.'

Signs from the Government pre-election suggested that they 'got' the importance of the EU for science and research. When the Prime Minister announced the Government's negotiating objectives for exiting the EU in January, she included ensuring the UK remains the best place for science and innovation. In the White Paper that was to accompany the introduction of the 'Brexit' Bill in Parliament, the Government suggested that they 'would welcome agreement to continue to collaborate with our European partners on major science, research and technology initiatives'. We hope this could indicate an appetite of the Government for future UK participation in Horizon 2020 and FP9 and that this continues after the election.

Unfortunately, we can't fast forward into the future and tell how the negotiations will unfold. All we can do is continue to work to put the voice of medical research charities forward, and monitor potential impact on the sector.

When the UK finally leaves the EU in March 2019, let's hope that some more of our parliamentarians and policymakers have medical research on their minds.

CATHERINE BALL

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'MIND THE GAP PLEASE!' TRANSCENDING BORDERS FOR BRITISH- TRAINED INDIAN ENDOCRINOLOGISTS

WRITTEN BY ANAND K ANNAMALAI & NARAYANAN KANDASAMY



The Indian and British undergraduate medical education and training systems share a lot of similarities. Postgraduate specialty endocrinology training in India is highly competitive. As of 2015, there were 31 hospitals with accredited endocrine teaching programmes.¹ Many Indian graduates therefore travel overseas to the UK and USA in pursuit of specialty training. The presence of a diverse ethnic Indian population in the UK, excellent postgraduate training opportunities and prospects for consultant jobs attract Indian doctors to the multicultural and multi-ethnic NHS.

We were attracted to the UK by this Western education and a hope of specialist training and long term prospects. Both of us ascended the ladder in the NHS, from senior house officer in medicine to clinical fellow, speciality registrar and clinical research associate in endocrinology over a period spanning more than 10 golden years. We witnessed the Callman training system and foundation programmes, and competed with the best for perfect specialty endocrine training.

After understanding the nuances of working in the NHS, we were all set to step up to a consultant post. However, our family situations beckoned

us back to India. This was the beginning of a new path and chapter in our lives. We were both apprehensive about returning to India, as the system of endocrine practice there differs in many ways from that in the UK.

We will take advantage of our experience to attempt to analyse the major differences in the pattern of disorders, healthcare facilities, delivery of care and clinical training in endocrinology in India when compared with the UK. In addition, we will provide a brief overview of healthcare models worldwide, to aid understanding of how different healthcare models affect the delivery of endocrine care in India.

INDIAN HEALTHCARE MODELS

Around the globe, you will find four major models of healthcare:²

- Beveridge
- national health insurance
- Bismarck
- out-of-pocket.

Table 1 (below) gives an overview of these models. The Indian healthcare model is a mixture of the Beveridge and out-of-pocket models. The Government/state-run hospitals (Beveridge) provide healthcare to all, but people from the lower and middle income strata of society are their main users. The upper middle and high income strata of society use private healthcare facilities (out-of-pocket), due to their better infrastructure. Private healthcare has a range of facilities from small clinics to tertiary level hospitals, and hence caters to the lower and middle income sectors too.

‘The luxuries of Indian endocrine private practice include the availability of state-of-the-art technology with an amazingly short waiting time.’

The corporate sector (tertiary private hospitals) has established chains of hospitals across India with world class, state-of-the-art facilities. Such chains often operate a ‘hub and spoke’ model, whereby their peripheral clinics feed into their secondary and tertiary care hospitals for higher levels of care. To give an indication of the scale at which the corporate sector hospitals operate in India, the Apollo hospital chain has more than 60 secondary and tertiary care hospitals employing about 47,000 employees, more than 150 primary care clinics, 115 telemedicine units and over 2,200 pharmacies across Asia.

The tertiary hospitals have telemedicine, teleradiology and tele-ICU (intensive care unit) facilities to connect to the remotest parts of India and neighbouring countries. Relatives and friends of patients in ICU can see and communicate with their loved ones from anywhere in the world. For a country as big as India, such technologies are transforming the way healthcare is delivered to every nook and corner of the country.

These facilities, along with the comparatively cheap healthcare costs and quicker access to healthcare, attract people from other countries, leading to the development of so-called ‘medical tourism’ in India.

INDIAN ENDOCRINE PRIVATE HEALTH CLINICS

The luxuries of Indian endocrine private practice include the availability of state-of-the-art technology with an amazingly short waiting time. The waiting time for magnetic resonance imaging (MRI) or positron emission tomography (PET) scanning is generally less than 24 hours, and an insulin pump or ablative radioiodine therapy could be scheduled within 48 hours.

However, the entire cost has to be borne by the patient, including outpatient consultations, investigations and therapies such as medications. Inpatient costs can be claimed through various private insurance companies. The stark differences between the NHS and the Indian private clinics include the challenge and skill of

assessing the economic capacity of the patient and of choosing the most important investigatory modalities and ideal cost-effective remedies. The capacities of patients seeking consultations to pay could vary from the super-rich to the most economically challenged.

India is the diabetes capital of the world and, in a country of more than one billion people, the endocrine and diabetes clinics are over-crowded. In the UK, if a single registrar sees 25 outpatients per day, it is considered a huge number. As private endocrinologists in India, we each see an average of 50 outpatients; this number could, at times, be as high as 90 endocrine/diabetes patients. The working schedule is also variable, with evening clinics running up to 10.00pm.

Although sometimes tiring, the clinics are very challenging and stimulating. The icing on the cake is that we generally only see diabetes and endocrine patients and the general medicine commitment is negligible.

Most private hospitals are equipped with an operating theatre, an in-house pharmacy and a comprehensive laboratory. The endocrine private clinics cater to walk-in patients who include self-referrals and referrals from other doctors.

The establishment of a private endocrine clinic is quite challenging, reminiscent of a DIY self-assembly project. The training curriculum to become a specialty registrar didn’t include investing money for private clinic infrastructure, planning the locality of a practice, acquiring bank loans, or shortlisting laboratory and hospital equipment. The silver lining is the support offered by family and friends.

‘As a private endocrinologist in India, we each see an average of 50 outpatients per day; this number could be as high as 90.’

Shortlisting, employing and training nurses and dieticians who have no experience in specialty medicine, as well as recruiting laboratory personnel, support staff, hospital managers and receptionists, test our management skills to the core.

Another important facet of private healthcare in India includes diabetes and thyroid screening camps (Figure 1), organised in semi-urban and rural areas at regular intervals, free of cost. These serve the dual purpose of

Table 1. Comparison of different healthcare models

	Beveridge model	Bismarck model	National health insurance model	Out-of-pocket model
Financier	Government (health tax)	Sickness fund (employer & employee)	Government-run insurance into which every citizen pays	Individual
Provider	Government (majority)	Government	Private	Private
Cost control	Strictly enforced government control	Negotiated monopsony	Negotiated monopsony	None
Coverage	All	All	All	Those who pay
Profit	Not for profit	Not for profit	Not for profit	For profit
Countries	India, UK, Scandinavia, Spain, New Zealand	Germany, France, Belgium, Japan, Switzerland	Canada, Taiwan, Korea	India, Africa, China



Figure 1. Diabetes and thyroid screening camps are an important facet of private healthcare in India.



Figure 2. Diabetes prevention workshops for the general public are organised by private clinics.

educating the public about non-communicable diseases and also estimating the disease burden in various sections of the community. Private clinics also undertake other social welfare schemes, including developing diabetes prevention strategies by educating school children and the general public (Figure 2). Organisation of these activities requires a lot of co-ordination and adaptation to the community setting, and leadership skills are put to the test.

PATTERNS OF INDIAN ENDOCRINE DISORDERS

Given the differences in genetic background, diet, lifestyle, and environmental factors between the West and the East, one might expect variation in the pattern of diseases between the UK and India.

Following the elimination of iodine deficiency disorders through mandatory iodination programmes, the most common cause of thyroid disorders in India now is autoimmunity. On the other hand, infiltrative disorders of the adrenal gland, especially tuberculosis and histoplasmosis, contribute to significant numbers of cases of primary adrenal insufficiency. Studies have shown that about 46–56% of patients with clinical tuberculosis have adrenal insufficiency.³ Unlike patients with Addison's disease, a significant proportion of those with infiltrative diseases recover their adrenal function after medical treatment.

There is a high prevalence of Sheehan's syndrome (postpartum hypopituitarism), which is often under-diagnosed. In certain parts of India, such as Kashmir, where there is a higher rate of home deliveries and maternal anaemia, the prevalence is as high as 3% of all deliveries in women above the age of 20 years.⁴ Certain causes of hypopituitarism are unique to the East: the bite of the Russell's viper (*Daboia russelii russelii*) is an uncommon, but important, cause of the condition. The venom is vasculotoxic and contains procoagulant enzymes that activate clotting factors, eventually leading to disseminated intravascular coagulation⁵ and hypopituitarism, which is a recognised complication. Tuberculosis is another important cause of hypopituitarism.

Among metabolic bone diseases, certain conditions, such as fluorosis and oncogenic osteomalacia, contribute to significant morbidity and are seen more often in the East.

By combining the clinical acumen acquired during our training in the UK with state-of-the-art facilities in the corporate sector hospitals, we

have ventured into managing challenging clinical cases with newer modalities of treatment, such as robotic surgery for selected cases of endocrine tumours.⁶

IN SUMMARY

The diversity of clinical presentations and rare diagnoses is indeed mind-boggling. They keep us on our toes and prompt us to glance again at textbooks or call consultant colleagues and friends in the UK. This interaction has helped scientific camaraderie, and we continue to maintain links with our mentors and supervising consultants from the UK. Academic exchanges have been mutually rewarding, with the identification of rare disorders, novel mutations and many joint publications.^{7–9}

Looking back, we appreciate that our current roles fulfil an important aspect of providing holistic endocrine and diabetes care and also interconnect scientific opportunities between two different systems of healthcare. We, as British-trained Indian endocrinologists, continue to 'Mind the Gap' in our Indian practice, and keep looking forward to fantastic opportunities to collaborate and advance the science of endocrinology with our friends and colleagues from the UK.

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LONG DISTANCE LINKS: DIABETES CARE FROM LONDON TO ABU DHABI

WRITTEN BY KARIM MEERAN, AMIR SAM & STEVE BLOOM



The idea and impetus to set up a centre for diabetes in the Middle East came in 2002 from one of Imperial College London's previous endocrine registrars, Maha Barakat. She was the centre's medical director for a decade, and is now Her Excellency Professor Maha Barakat OBE, Abu Dhabi Minister of Health.

It is remarkable to see how the Imperial College London Diabetes Centre (ICLDC; www.icldc.ae), a state-of-the-art diabetes centre in the capital of the United Arab Emirates, Abu Dhabi, has been born from scratch. Over the last 10 years, the centre has flourished, and now sees over 600 patients daily.

A CONSIDERED DESIGN

Everything, from the building's appearance to its layout, has been carefully thought through. The outside is clad in geometric shapes that represent the insulin molecule seen through an electron microscope. Inside, over three floors, the escalators that bisect the centre of the building take patients on a logical route from one appointment to the next.



Imperial College London Diabetes Centre (ICLDC), Al Ain. ©ICLDC

Before seeing a diabetologist at ICLDC, new patients see one of the nurses, who carry out all the blood tests. These are analysed in 20 minutes in an on-site laboratory. The patient also has urine and vision tests, retinal photography and an electrocardiogram performed to identify early signs of kidney, eye and heart disease. The results of all these tests then pass electronically via the medical record to the doctor, ready for the patient's appointment.

The electronics are quite advanced – if you try to prescribe an ACE (angiotensin-converting enzyme) inhibitor to a pregnant woman it will stop you. The computer also keeps an eye on how hard you are working!

PROVIDING PATIENT SUPPORT

ICLDC has set up a satellite in the second city, Al Ain, and recently opened its third clinic at Zayed Sports City in Abu Dhabi, with plans to expand further.

Proper diabetic care is desperately needed in the Emirates as, with an improved standard of living, has come obesity and its 10-year delayed concomitant, type 2 diabetes. To prevent the previously inevitable diabetic complications following on from this, better diabetic care is essential. A vigorous outreach programme, with well known personalities frequently visiting the centre and coverage in the local news of what a diabetic should do, along with population programmes, such as fun runs and walking for

health, make sure the population gets referred as early as possible. A citizen insurance scheme makes it nearly cost-free.

'Reciprocal training links have been established, with fellows from Abu Dhabi completing their training in London. A number of Imperial's London trainees are also undertaking their PhDs in the ICLDC laboratories.'

EDUCATING PROFESSIONALS

To sustain the cutting-edge diabetes healthcare, a vigorous education programme is also delivered at the ICLDC. This includes three international congresses with delegates from over 30 countries, namely: the European Society of Endocrinology's annual Clinical Update meeting, the Royal College of Physicians of London annual Advanced Medicine Congress and the International Advanced Diabetes Conference. Furthermore, the Imperial Diabetes Educator Training Course, to improve diabetes specialist nurse training, has also been very successful.

Reciprocal training links have also been established, with endocrine training fellows from Abu Dhabi completing their training at the Hammersmith and Charing Cross Hospitals in London. A number of Imperial's London trainees are also undertaking their PhDs in the ICLDC laboratories.

The Imperial College endocrine department is delighted with the high standards ICLDC has been able to deliver and also its rapid expansion. Even greater activity is anticipated for 2017. The expanding success of ICLDC is bringing material health benefits to the citizens of the Emirates and makes the whole relationship both worthwhile and exciting.

KARIM MEERAN, AMIR SAM & STEVE BLOOM
Imperial College London



GRADUATE MEDICAL TRAINING IN THE USA: AN INSIGHT FROM DEBRA WEINSTEIN

INTERVIEWED BY AMIR SAM

Debra Weinstein is in charge of graduate medical education across Partners Healthcare, which includes two of the most prestigious hospitals in the world: Massachusetts General and Brigham and Women's. During a recent trip to Harvard Medical School, Amir Sam spoke with her about postgraduate education in the USA.

Could you briefly explain the postgraduate medical training pathway in the USA?

Following graduation from medical school, US physicians pursue graduate medical education (GME), which is required for licensure. GME includes residency training in a specialty of medicine, and may be followed by fellowship training in a subspecialty. The residency programmes range from 3 years in internal medicine to 7 years in neurosurgery, for example. Fellowships can last anywhere from 1 to 4 or more years, longer for those who are anticipating an academic career and want to get research training. Specialty Board Certification exams are taken after completion of residency, and many subspecialties have certification exams following fellowship training.

Are there formative opportunities for trainees to receive feedback before they take the Board exams?

Yes, many specialties have nationally standardised 'in-service' exams that are undertaken during residency. These provide residents with a sense of where they are, and also allow programmes to identify if their residents are not doing as well as they should in certain areas. Of course, this supplements routine feedback provided in the clinical setting.

How do you select your trainees?

Each specialty programme has their own selection committee, and they establish their own criteria. Usually, the initial selection of candidates for interviews is based on academic criteria, letters of recommendation and other relevant experience and credentials (such as research, community service, etc.).

How are assessments and appraisals performed?

This is an area of great interest and importance for medical education in the USA and elsewhere. In my role as Deputy Editor of the journal *Academic Medicine*, it's gratifying to see a large volume of scholarship focused on this topic. Increasing attention is being paid to competency-based, rather than time-based, education, which of course relies on valid and reliable assessments. I think over the next 10–20 years we will develop substantially improved assessment tools and methods, supported by an expanding evidence base.

How many hours a week on average does a resident in internal medicine work?

We have duty hours limits determined by the ACGME (Accreditation Council for Graduate Medical Education), and since 2003 there have been limits that apply across all specialties. The maximum is 80 hours a week, averaged over four weeks. There are also requirements relating to shift length, the frequency of nights on call, and minimum breaks between shifts. Programmes and institutions are responsible for monitoring duty hours and addressing areas of non-compliance.

What would the reaction be if the weekly hours were reduced to 48, for example?

A lot of people oppose the 80-hour limit based on concerns about providing sufficient education and on the unintended consequences of an 'unfunded



Amir Sam interviewing Debra Weinstein.

'I think over the next 10–20 years we will develop substantially improved assessment tools and methods, supported by an expanding evidence base.'

mandate'. I think there would be a huge uproar if 48 hours were proposed in the USA.

What is the average salary for a resident in internal medicine?

Salaries are established by each teaching institution, but tend to be similar across hospitals, especially within a given region. In our institutions (and I think this is true generally across the USA) the salary is based on an individual's year in training, not their specialty. In Boston, salaries currently start at about \$60,000 a year for interns (i.e. the first year out of medical school), and increase by a few thousand each year. The majority of residents carry large burdens of educational debt and many, if allowed by their programme, identify clinical moonlighting opportunities towards the end of their residencies.

In the UK, trainees rotate across a number of hospitals. How often do junior doctors rotate in the USA?

That varies by programme. At Massachusetts General, internal medicine residents spend most of the time at that hospital. However, the residents do rotate to our affiliated community hospitals for community hospital experience, and many have their continuity clinic practices in community-based settings.

In the UK, the emphasis is moving towards community-centred care provision, but most training is still delivered in hospitals. How does that compare with the USA?

Over time, there has been a distinct movement towards more emphasis on ambulatory training, though some groups recommend that a greater proportion of the training should take place in the ambulatory setting. The teaching hospitals that generally sponsor and design the programmes have come to rely on residents' contribution to patient care delivery, and our federal system of reimbursement tends to perpetuate the status quo. Many hospitals offer primary care tracks, distinct from 'categorical' internal medicine programmes, and these tend to involve more time in continuity practice settings.

Do your residents have protected time for research?

It is quite variable. Some hospitals emphasise the training of physician investigators and build in dedicated research time, perhaps offering specific research tracks. Other hospitals that are oriented more towards training excellent clinicians may not have protected research time. For decades, the American Board of Internal Medicine has had a pathway for researchers (the clinician investigator track) where, instead of doing 3 years of clinical work, residents can do 2 years of clinical rotations and 2 years of research.

What about doing research during the fellowship programme?

Fellows often stay in the institution for a longer period than the prescribed duration of the fellowship programme. Those who want to get an academic job need to have additional research training, so that they can write grant proposals and get independent funding. The departments are often quite flexible about finding ways to support these individuals for a longer period of research training, for instance through faculty members' grants and part-time clinical activity for research fellows. This is intended to better position fellows for their transition to faculty positions.

Can fellows register for a PhD during this time?

In the USA, doctoral (PhD) education is much more likely to be integrated with medical school than with residency training.

What is better about the life of the doctor now, compared with when you qualified?

I think the idea that we have a competency-based curriculum in medicine is definitely an advance. When I was in training, the word 'curriculum' was never used in association with residency education. There was a sense that if you threw somebody into experiential education for a number of years, they would see and do everything they needed to, and then would be sufficiently prepared to practise independently by the time they graduated. Now we think more deliberately about how people learn and what experiences should be included in residency training, and we make a more concerted effort to assess performance along the way and coach or remediate the individual as needed. This is all for the better.

Is there anything worse in your opinion?

Email! It reflects the expansion of bureaucratic administrative work. I think the fact that email is so easy to send takes away any filter, so we all get a lot of trivial notes that we have to sift through every day.

Massachusetts General Hospital. ©Shutterstock



DEBRA WEINSTEIN MD

Vice President for Graduate Medical Education at the Partners Healthcare System

Overseeing 280 graduate medical education (GME) programmes with more than 2,200 residents and fellows

Also Associate Professor of Medicine at Harvard Medical School, and a Director of the MGH Institute of Health Professions

Background:

Graduated (majoring in music): Wellesley College, MA

MD: Harvard Medical School, Boston, MA

Clinical training (internal medicine and gastroenterology): Massachusetts General Hospital (MGH), Boston, MA

Former roles and awards:

Chief Resident, MGH

Associate Chief and Director of Residency Training in Medicine, MGH

Board Member: ACGME (Accreditation Council for Graduate Medical Education)

Chair: ACGME Board's Journal Oversight Committee

Chair: AAMC (Association of American Medical Colleges) Group on Resident Affairs

Chair: May 2011 Macy Foundation Conference

Chair: Massachusetts Medical Society's Publications Committee

Member: Institute of Medicine Committee on the Governance and Financing of GME

2006–2007 American Council on Education Fellow

Recipient of the ACGME's Parker Palmer Courage to Lead Award

Current activities:

Planning Committee Chair, National Academy of Medicine Workshop on GME Outcomes and Metrics

Deputy Editor: *Academic Medicine*

Member: Perspectives Advisory Board for *New England Journal of Medicine*

Do you think that women are fairly represented as senior clinician academics in the USA?

There is no question that women are better represented in leadership positions in higher academic ranks than in the past, but it is not proportional yet to their representation in the profession. Part of that may be because a generation or two ago there were fewer women coming into the profession, whereas now roughly half of US medical graduates are women. But I don't think that is the whole story, and there is a lot of work going on to examine what other barriers exist and how they can be addressed.

Some of the issues being examined include how to make it easier for women to succeed in research when so much of the career-building occurs during the child-bearing years, or whether

pay is equal for men and women in different areas of academic medicine and how to address it where it is not. Another question being addressed is to what extent do women make different choices from men in terms of the career paths they follow, and do those choices lead to fewer opportunities for leadership or academic advancement?

How do you support those who want to have children during their training?

More and more women and men are becoming parents during their training. It is obviously an additional stressor and at the same time a wonderful privilege. The institutions need to do everything they can to recognise the pressure and provide support. For instance, there are now lactation spaces on campus that residents can access. There are parental leave policies that recognise that both women and men should spend time with infants. In terms of part-time residencies (flexible training), we don't have those formally available at our institutions. We have polled the applicants about this a couple of times and didn't identify a large volume of interest. However, individuals can seek to work out individual arrangements that fit their needs. Also, there are back-up childcare services available through some of the hospitals.

'There is no question that women are better represented in leadership positions in higher academic ranks than in the past, but it is not proportional yet to their representation in the profession.'

Do trainees work full-time after they return from maternity leave?

Generally yes, though it is often very challenging.

What would be your three pieces of advice to a new intake of residents?

First, in order to take good care of the patient, they need to take good care of themselves. Often, out of an abundance of dedication and commitment, residents are so focused on the intense work of learning and caring for patients that they are not paying attention to their own well-being.

Another piece of advice would be to ask for feedback all the time, because faculty are not as comfortable as they should be – and not as skilled as they should be – in delivering feedback, and it is much easier to get feedback if you proactively seek it.

And the last one would be to lean on your colleagues. I tell the incoming residents and fellows that medicine has always been a team activity, but we are really embracing that aspect of it more now than we did in the past. They should realise that everybody is feeling the same stresses and sharing the same aspirations for the patient, and they shouldn't feel like they have to take care of everything independently.

INTERVIEW BY AMIR SAM

Associate Editor, *The Endocrinologist*

LARGE DATASETS AND COHORTS: THE SCANDINAVIAN PERSPECTIVE

WRITTEN BY PETER M NILSSON

In Sweden, we have seen the establishment of large cohorts and registers over the last 2 decades to provide data for a better understanding of diabetes epidemiology. Such databases can also be linked to national registers on morbidity and mortality, as well as drug usage (provided by the National Board on Health and Welfare), when a 10-digit personal identification number is used for linkages.

NATIONAL DIABETES REGISTER

It all started in 1996, when the National Diabetes Register (NDR) of Sweden was established as a response to the St Vincent Declaration on improved quality of care for patients with diabetes. The NDR (which has been led by Soffia Gudbjörnsdóttir (Gothenburg) for a number of years) has developed into a national resource, now covering more than 98% of all patients with diabetes treated at hospital level and in primary healthcare. The data included in the NDR are derived from electronic medical records, but previously also from records held on paper.

A number of publications have described trends in risk factor control as well as special characteristics of patients with different diabetes complications.^{1,2} In fact, one recent paper even described the profile of patients with type 1 diabetes escaping complications even after a very long follow-up.³ Even high-impact journals have accepted papers that include observational register data from the NDR.^{4,5}

One shortcoming of the NDR is, however, the lack of a biobank, as well as matched non-diabetic controls. It should be mentioned that it took at least 15 years to achieve national coverage for the NDR, and this was based not only on agreements between healthcare representatives but also on support and funding from national authorities such as the National Board on Health and Welfare.

DISS REGISTER AND AUTOIMMUNITY

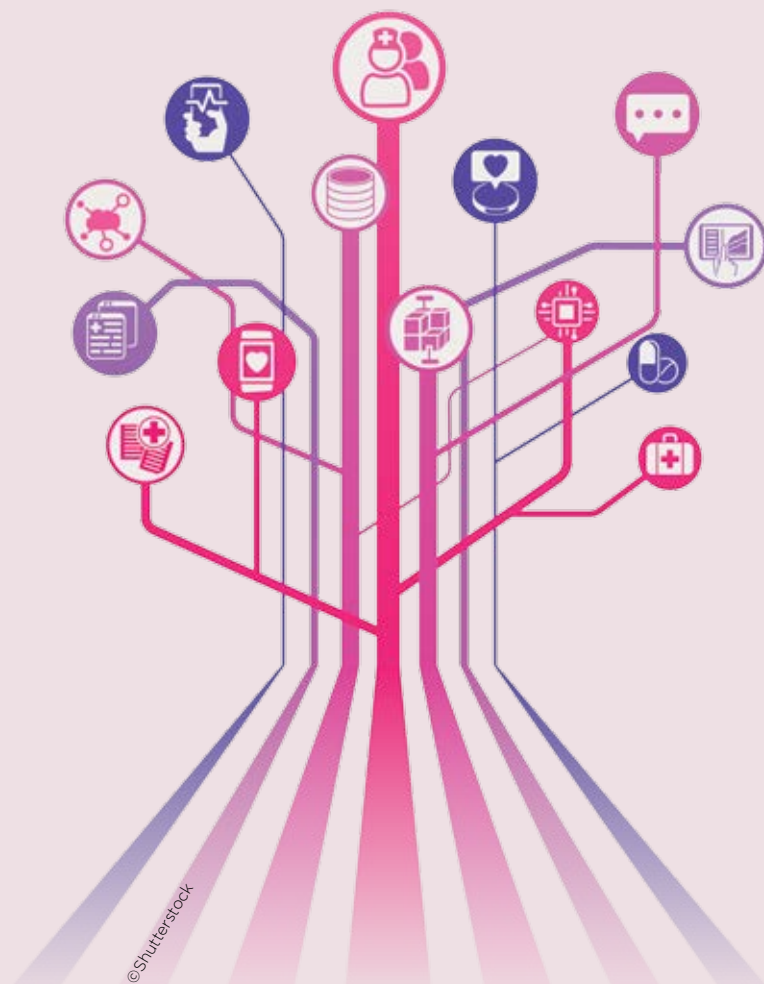
Another national register, the DISS (Diabetes Incidence Study in Sweden) Register, is based on information from younger patients with new-onset diabetes before the age of 35 years. One of its leaders is Mona Landin-Olsson, the current President of the Swedish Society for Diabetology. The register's focus is on using autoimmune markers of diabetes to diagnose different types of diabetes, including late autoimmune diabetes in the adult.⁶

In Skåne, a southern province of Sweden, local diabetes registers and cohorts have been set up by researchers from Malmö led by Leif Groop. The bold ambition has been to screen all newly detected patients with diabetes in Skåne and to collect data on immunological markers as well as other useful information and characteristics, including a full genetic profile. The goal is to use this information for a better classification of patients with diabetes.⁷

OTHER COHORTS

Sweden also has a number of large population-based screening studies (cohorts) with a special emphasis on diabetes and its complications. One such is the Västerbotten Project in the northern part of the country, where Olov Rolandsson and Stefan Söderberg are leading research focused on diabetes.⁸

In Malmö, two large-scale population-based cohorts (the Malmö Preventive Project (MPP) and Malmö Diet Cancer (MDC)) have contributed richly to describe the genetics of type 2 diabetes as well as predictive factors.^{9,10}



This work is led by Olle Melander and Peter M Nilsson. One particular asset is the rich data on dietary intake and physical activity in the MDC cohort, which can be used in combination with genetics to explore gene–environmental associations (led by Marju Orho-Melander and Paul Franks).^{11,12}

‘The existence of national registers as well as local cohorts with extensive biobank resources makes it possible to further study the profile and risk factor patterns associated with type 2 diabetes, as well as diabetes complications.’

Another valuable local screening project in Malmö is the TEDDY (The Environmental Determinants of Diabetes in the Young) Project, where siblings and relatives of children with type 1 diabetes are invited to undertake screening and mapping of autoimmune markers. The aim is to find new ways for early identification of individuals at risk among siblings and to offer them early prevention. Åke Lernmark is leading work on testing new immunisation therapy, in collaboration with researchers in the USA.¹³

In Linköping (also in southern Sweden), Fredrik Nyström and Carl-Johan Östgren have led work with a special cohort, known as CARDIPP (Cardiovascular Risk Factors in Patients with Diabetes – a Prospective Study in Primary Care). This has described the haemodynamic profile of patients with type 2 diabetes, and also led to publications on so-called ‘masked hypertension’. This phenomenon occurs in about 25% of all patients with type 2 diabetes who lack, for example, nocturnal dipping patterns of their blood pressure.¹⁴

Further work includes a local register of all children with new-onset type 1 diabetes in south-east Sweden (led by Johnny Ludvigsson), and a similar



national register by Gisela Dahlquist (Umeå). Meanwhile, the Stockholm Diabetes Prevention Programme (led by Claes-Göran Östenson) focuses on family traits of β -cell function and risk of complications.¹⁵

WHAT’S THE SECRET OF SUCCESS?

You might ask how researchers in Sweden manage to set up this type of longitudinal study. It could be our tradition of using personal identification for register follow-up, which is generally supported by the population as well as patient organisations. In addition, there is also the financial support from funding bodies such as the Research Council of Sweden.

Another important aspect is the dedication of clinicians working together with researchers to set up quality registers such as the NDR for benchmarking. One special feature of the NDR is the fruitful collaboration between hospitals and primary healthcare, mostly in the public domain, which is built on mutual trust and interaction between different care levels.

For biobank usage we need technical platforms for omics and biomarker discoveries, such as SciLife (www.scilife.se) – a technical platform supported by the Swedish Government.

In summary, the existence of national registers as well as local cohorts with extensive biobank resources makes it possible to further study the profile and risk factor patterns associated with type 2 diabetes, as well as diabetes complications. We also have some registers and cohorts dedicated to type 1 diabetes, including data from siblings. These can contribute to a better understanding of disease progression and a basis for new treatment, as well as improved quality of care.

It is of special interest to focus on patients escaping complications in spite of diabetes of long duration. If the mechanisms behind this protection could be revealed, and the genetic structure described, there could well be new ideas for future drug targets for protection against complications.

Thus, national registers and local cohorts can effectively be combined as an asset for research on type 1 and type 2 diabetes.

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BREAKING DOWN BORDERS: THE EUROPEAN SOCIETY OF ENDOCRINOLOGY

WRITTEN BY AJ VAN DER LELY & DJURO MACUT



In principle, political, economic and technological developments should provide greater opportunities for people to live and work across borders. Therefore, with increasing populism, protectionism and shifting political paradigms throughout the world, it is essential that learned societies recognise and adapt to the changes that such increased freedom of movement should bring. This is even more important in the field of medicine, where differences in clinical practice between countries have very real implications for the outcomes of patient care.

The European Society of Endocrinology (ESE) works with the national endocrine societies of Europe to unite, support and represent clinical and research endocrinologists, with the ultimate goal of improving diagnosis, treatment and support for patients with endocrine disorders.

At ESE, we recognise the importance of co-operation in achieving a better outcome for patients. It is fundamental to continued progress in our field that endocrinologists across Europe are united in their efforts to drive research and improve clinical practice. While such collaboration forms an essential component of our core strategy, we acknowledge the added strength and advantage that come from the diversity of backgrounds, attitudes and approaches which exists across Europe.

BRINGING SOCIETIES TOGETHER

In 2013, the ESE Council of Affiliated Societies (ECAS) was formed. This provides a forum for ESE's 47 National Affiliated Societies to discuss opportunities, challenges and developments in endocrinology. Through ECAS, we have fostered regular communication and collaboration between the National Affiliated Societies, initiating pan-European programmes benefiting endocrinology and bringing European endocrinologists closer together.

We feel that endocrinologists benefit from representation at the national and European levels. By working closely with ECAS, we have recently developed National Affiliate Membership, so members of our National Affiliated Societies pay a discounted ESE membership fee, and receive the full member benefits provided to our standard members. In this way, we demonstrate our continued support for the national endocrine societies of Europe.

HARMONISING EDUCATION AND TRAINING

At the request of and in association with ECAS, ESE has created a 'Recommended Curriculum for Specialisation in Clinical Endocrinology, Diabetes and Metabolism'. This document highlights the key areas of clinical endocrinology in which a practising clinician should be competent.

It is intended as an aide to both students and education providers to promote a more complete education in clinical endocrinology.

ESE hopes to build on this document, ensuring it forms the backbone of continued efforts to harmonise clinical endocrine education in Europe in the future.

It is important that education providers are given support and guidance, allowing them to develop their educational programmes accordingly. In addition, trainees need the opportunity to demonstrate their level of knowledge and experience. To this end, again in conjunction with ECAS, ESE is working with the Society for Endocrinology, the Association of British Clinical Diabetologists, the Federation of Royal Colleges of Physicians of the UK and the European Union of Medical Specialists to create certification in clinical endocrinology. We plan to hold the first of these voluntary examinations in 2018, providing candidates with an opportunity to assess and report on their knowledge and understanding of endocrine healthcare.

UNIFYING GUIDANCE AND SCIENTIFIC SUPPORT

Through our Clinical Practice Guideline programme, ESE brings together experts on key endocrine topics to produce consensus guidance on the best

clinical management of endocrine conditions. To have the greatest clinical impact, these guidelines are made available publicly, and we invite input from our National Affiliated Societies to ensure that they remain relevant throughout Europe.

Scientific progress, through basic research, forms the foundation upon which clinical advancement enables new treatments and new strategies for tackling challenges in endocrine healthcare. ESE's direct grants, training courses and funding opportunities support basic scientists working on endocrine research. We also ensure that basic research is present throughout our congress, publications and other core activities. We work with our basic scientist members to enhance future understanding of our field, recognising the clear link between good research and improved clinical care.

WORKING IN PARTNERSHIP

ESE is not alone in working to improve patient care in Europe for endocrine disorders. We routinely collaborate with other pan-European organisations, focusing our efforts to bring greater success.

In December 2016, the European Commission confirmed the successful application to establish a European Reference Network for Rare Endocrine Disorders (ERN-ENDO). This was supported by ESE and the European Society for Paediatric Endocrinology. It will be formed from more than 70 nationally recognised healthcare centres across Europe, focusing on ensuring that expertise in the treatment of rare diseases is provided locally to patients.

Representation enables individuals within a society to benefit from the combined voice of the society members. Through our direct membership of over 3,500 individuals and our support of the National Affiliated Societies, ESE represents more than 20,000 endocrinologists. Our involvement with European advocacy bodies, such as the European Medicines Agency, the Alliance for Biomedical Research in Europe and the Initiative for Science in Europe, alongside our own advocacy initiatives, ensures we can address the issues of greatest concern to European endocrinologists, combining our influence to drive real change in policy.

There are many consequences of internationalism, and the approaches required to ensure that this social development continues to have a positive impact on patient lives are numerous. ESE, through collaboration with the national endocrine societies of Europe, continues to develop initiatives for harmonising education, facilitating collaboration, raising standards of clinical care and furthering our understanding of endocrine disorders. These initiatives all serve to better prepare scientists and healthcare providers for a truly international future.

AJ VAN DER LELY
ESE President

DJURO MACUT
ECAS Representative to the ESE Executive Committee

Find out more at www.es-hormones.org.



NEED SOME GREAT CPD? INVESTIGATE THE ENTICING PROGRAMME AT SFE BES 2017

FROM OUR CLINICAL COMMITTEE CORRESPONDENT

The 2017 Society for Endocrinology BES conference is fast approaching. There has never been a better time for clinical endocrinologists to benefit from the sensational opportunities for continuing professional development (CPD) than by embracing those that are on offer in this programme!

The Society is thoroughly committed to providing best practice guidance and state of the art CPD tailored to clinicians' needs. Having had a sneak preview of the 2017 conference programme, it's clear that the main challenge for delegates will be choosing from the amazing array of clinical sessions. There is a superb variety of highly relevant clinical topics on offer, delivered by expert speakers in each field.

Updates on the most common clinical management problems, as well as the newer challenges that we all face, will be well covered within symposia, 'Meet the Expert' sessions and the ever popular 'How do I do it?' talks. These clinical management workshops have been extremely popular, with excellent feedback in previous years. I have no doubt that this year the sessions will be just as appealing and useful to clinicians.

Emerging areas such as opiate-induced endocrinopathy and the endocrine effects of the innovative immune checkpoint inhibitors will feature prominently this year.

Coverage of common clinical topics will include challenges in thyroid disease, puberty, menopause, sub-clinical Cushing's, and endocrine hypertension. More challenging clinical scenarios will include looking at the role of SDH (succinate dehydrogenase) beyond paragangliomas, diabetes insipidus, and the management of adolescents with pituitary disease, amongst other topics.

Whatever your clinical interest, all the most relevant clinical challenges will be covered at Society for Endocrinology BES 2017.

There will also be lots of 'dovetailed' symposia to lure those of us who are more clinically inclined into the wonderful world of endocrine science. These span topics ranging from calcium to circadian rhythms and from bone to behaviour! Of course, obesity has a significant impact on the work of clinical endocrinologists, and this year's debate promises to be eminently engaging and controversial.

The career workshops for 2017 have a very novel and interesting flavour, covering areas such as medicolegal practice, clinical management and private practice. And, of course, the plenary sessions will be the icing on the cake!

Whatever your clinical interest, I can assure you that there will be a fantastic programme on offer with invaluable, engaging and interesting CPD at this year's conference. So don't delay, register now!

ANNICE MUKHERJEE
Clinical Committee correspondent

- Find out more and register today at www.endocrinology.org/events/sfeb2017
- Abstract submission closes on **19 June**
- Early bird rates are available until **18 September**
- Don't forget – Society members receive a 40% discount on the full early bird price!

Society for Endocrinology

SFE BES 2017
6-8 November
HARROGATE

View the programme online

SUBMISSION OF ABSTRACTS DEADLINE
19 June 2017

EARLY BIRD REGISTRATION DEADLINE
18 September 2017

GET THE LATEST INFORMATION
#SFE BES2017
www.endocrinology.org/events

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YOUR SOCIETY, YOUR OPINION.

Get involved

The 2017 Society for Endocrinology member survey is here. This is your chance to help shape your Society's new four-year strategy, and improve the member experience, by voicing your opinion.



Your opinion counts

Please tell us what you think the Society is doing well, and where we need to improve, by completing the survey before **23 June 2017**.

The survey is available in the members' area of the Society's website and current members will receive an email with a link to the survey, so please check your inbox.

endocrinology.org/members

**SOCIETY FOR
ENDOCRINOLOGY
CORPORATE
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2017**

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Silver Supporters:
HRA Pharma
Ipsen Ltd

Gold Supporter:
Shire

Novartis Pharmaceuticals

For more information, visit www.endocrinology.org/corporate or contact amanda.helm@endocrinology.org.



BREXIT: WHAT EFFECT ON ENDOCRINOLOGY AND DIABETES?

WRITTEN BY MARK MCCARTHY



Now many months on from the referendum, with 'Article 50' triggered, and initial negotiating positions staked out, the shape of the UK's exit from the EU seems clearer. For most researchers, in the life sciences and beyond, that clarity has brought precious little reassurance. As a group, scientists were overwhelmingly disposed towards 'Remain'. They continue to be amongst the most vociferous opponents of the path towards Brexit that the Government has charted.

ACCESS TO FUNDING

The list of challenges that Brexit poses to the future success of UK biomedical research have been widely rehearsed. Most obvious is the near certainty that UK researchers will lose their current access to funding from EU mechanisms, including the European Research Council, the Innovative Medicines Initiative, and Horizon 2020 and its successors. These mechanisms, which currently account for over 15% of total UK research grant funding income, have been particularly good value for the UK taxpayer, returning £1.60 of funding for every pound paid into the common pot.

More painful for many researchers will be the impact that the loss of joint funding has on the chances of being part of the large scale, multidisciplinary, collaborative science that increasingly drives discovery and innovation. European funding has been critical in establishing research networks that can operate on a supranational scale. A negotiated resolution of Brexit that allows the UK to take on one of the multiple configurations of associate membership for EU research programmes (such as are enjoyed by Israel, Turkey or Switzerland) may provide some remedy. However, the consequent 'outsider' status is unlikely to be as rewarding as current arrangements, from the perspective of scientific leadership or financial advantage.

EMPLOYMENT

Then there's the question of recruitment and retention. Over 20% of the UK scientific workforce is estimated to come from the EU. The impact of Brexit-related uncertainty on the commitment to the UK of the talented, mobile workforce that sustains scientific research is already evident in labs across the country. It mirrors what has been documented in the NHS.

It is likely that whatever immigration policy emerges from Brexit will not block recruitment of EU nationals into research posts from senior postdocs upwards. But there will be costs, for both prospective employees and employers, in jumping through the bureaucratic hoops needed to obtain work permits for EU nationals with much needed expertise, just as is currently the case for those from outside the EU.

That, of course, presumes that the researchers we need to recruit will choose to consider the UK in the first place, making the decision to invest their futures (and those of their families) in a country that appears to have turned its back on its natural cultural and scientific partners and is retreating into malignant xenophobia. Such reticence is likely to be magnified at senior (principal investigator) levels. Prospective applicants will need to balance the inherent attractions and advantages of the UK research environment against the kinds of funding and recruitment uncertainties described above.

REGULATORY DIVERGENCE

Finally, there are concerns arising from the impact of any regulatory divergence (e.g. the departure of the European Medicines Agency) on the biotechnology and pharmaceutical sectors and their interest in expanded investment in the UK science base.

Given all of these issues, not to mention the broader political and cultural situation, it is all too easy to despair, to react to recent events as much emotionally as rationally. As Nobel Prize-winning psychologist Daniel Kahneman has noted, it is natural that the negatives of certain and immediate loss tend to outweigh the nebulous promise of future gains. But there is also the concern that too much doom and gloom runs the risk of exacerbating the situation.

OBTAINING A POSITIVE OUTCOME

There are concrete steps we can take. On a personal level, we can reassure our EU colleagues and staff that they are valued, that we understand their concerns and that we are doing what we can to minimise the impact Brexit will have on their lives.

Researchers can seek to establish new collaborations using the opportunities now available through the Global Challenges Research Fund and Newton Fund (whilst recognising it is not possible to simply swap long-established European collaborators for those in Mexico or India). Some research leaders are seeking out adjunct positions at European institutions, which might allow them to maintain access to EU funding and 'offshore' some of their research activities.

Above all, we should take every opportunity we can to present the exquisite value of science and collaborative endeavour, and to press upon those with influence the need to retain our collaborative options within Europe. There are strong advocates for science at the Wellcome Trust, in the Research Councils and at UK Research and Innovation who will help us make the case, as well as in Parliament. The recent report¹ from Stephen Metcalfe and colleagues on the Parliamentary and Scientific Committee, for example, sets out a series of achievable objectives: if met, these will go a long way to ensuring that our worst fears are not realised.

MARK MCCARTHY

Robert Turner Professor of Diabetic Medicine, University of Oxford

REFERENCES

1. Metcalfe S 2017 *Science Priorities for Brexit* <http://bit.ly/2oVCQyo>

Further your endocrine journey: **WITH SOCIETY GRANTS AND AWARDS**

TRAVEL GRANTS

Meet and engage with the endocrine community worldwide

Receive up to **£1,100** per year to attend **1 UK** and **1 OVERSEAS** conference

Over **£80,000** paid for members' travel in 2016, **13% MORE** than 2015

3 CHANCES to apply each year: March, August and December

Next **TRAVEL GRANT** deadline: **15 August 2017**



“ *It's meant that I can travel to lots of different conferences ... so I've got to go to Chicago and Dublin ... to meet with researchers ... and to present my data all over the world.* Lorna Gilligan, Birmingham

Society members have visited **17** countries **WORLDWIDE** since 2014

From Australia to Brazil, Canada to South Africa, we ensure a worldwide reach for your research!



UNDER-GRADUATE ACHIEVEMENT AWARDS

Encourage excellence in endocrinology by rewarding outstanding undergraduates



£300 PER YEAR for **3 YEARS** to an institutional department to award to students

£17,100 awarded since 2014

“ *Attract the best students and encourage them to perform to the best of their abilities.*

Peter King, Queen Mary University of London

19 DEPARTMENTS currently funded across the UK



“ *We really appreciate the opportunities this grant has afforded, not only enabling the recognition of the talents of our graduates, but also providing the connectivity and prestige associated with the Society for Endocrinology.*

Nigel Page, Kingston University London

“ *This excellent initiative has increased the profile of endocrinology among the biomedical sciences undergraduates in Cardiff, resulting in a dramatic increase in demand for endocrinology-based final year projects from our brighter students.*

Timothy Wells, Cardiff University

UNDERGRADUATE ACHIEVEMENT AWARD

applications open
14 June-12 July 2017

You can learn more about all Society grants and awards at www.endocrinology.org/grants-and-awards

Want to talk about hormones? WE'RE HERE TO SUPPORT YOU!

As a clinician, scientist or nurse, you may want to engage with non-specialists about endocrinology for many reasons, such as increasing impact, inspiring young people to join the discipline, encouraging behavioural change, developing new skills, or it could simply be a requirement of your latest research grant. Whatever your motivations, the Society for Endocrinology can support you, by offering training and the practical tools and opportunities to put your ideas into practice.

LEARN HOW TO DO IT

We can train and support you in your outreach efforts. The Society offers training, toolkits and resources to get you started or help you try something new.

Formal courses include:

- Introduction to public engagement
- Developing your engagement skills
- Introduction to the news media
- Hands-on media training

“ It is useful to remember that, while only 0.00001% of the population will ever read our papers, the other 99.9% pay for our salaries and fund our research. I would therefore argue that it is our duty to engage with the public.

GILES YEO,
Cambridge



“ The benefits of working with the media can include sparking collaborations, attracting staff/students, gaining recognition for your area of work and helping obtain funding.

HELEN SIMPSON,
London



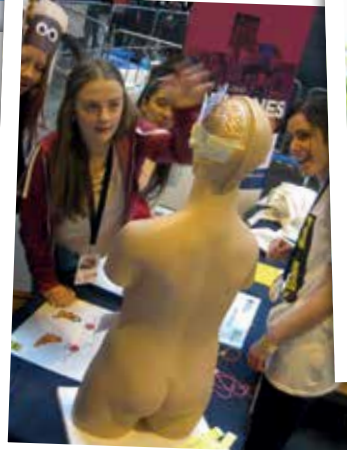
PUT IT INTO PRACTICE – TRY THESE!

There are various opportunities (that don't take up loads of time!) for you to try public engagement for the first time, or gain further experience.

- **Respond to media enquiries** that come to the Society and work with journalists to get the right information about hormones into the media
- **Volunteer to work on a Society stand** at the Lancashire Science Festival (29 June–1 July) or Lambeth Country Show (15–16 July)
- **Partner with a science communicator** to develop a Society-funded project and learn from the professionals
- **Apply independently for a Society Public Engagement Grant** before the next deadline of 30 September

“Public engagement takes many forms, and my recent foray into a world where science meets art was certainly different from my previous experiences of bringing science to school children. Via a “match-maker” call from the Society for Endocrinology, I hosted a group of artists embarking on their own short-form films as part of this collaborative project.

KIM JONAS, London



“Engaging in STEM activities allows me to take a step back from my PhD, and reminds me of the bigger picture of my research, so helping to provide a fresh perspective.

ALICE FLETCHER, Birmingham



“Public engagement, when done well, can have an impact on you, your research and practice, and those you engage with. It can be challenging, but it can also be enormously rewarding. It could be as easy as just starting a conversation about your work.

SOPHIE DUNCAN, National Co-ordinating Centre for Public Engagement



USE THESE TOOLS

- **You & Your Hormones, www.yourhormones.info**, the Society's official public information site (under redevelopment)
- **Tried-and-tested templates and resources** to plan your own activities
- **Share your own established resources** to increase their impact

For the latest information on training, support and opportunities see www.endocrinology.org/outreach or contact media@endocrinology.org

A REMINDER ABOUT THE BENEFITS OF PUBLISHING IN SOCIETY FOR ENDOCRINOLOGY JOURNALS



Journal of Endocrinology

Impact Factor **4.498**, the leading basic endocrinology journal



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Now the **leading** society-owned basic molecular endocrinology journal



Endocrine Connections

Free open-access publishing for SfE members*



Endocrinology, Diabetes & Metabolism Case Reports

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Endocrine-Related Cancer

Author fees waived for SfE members

*Terms & Conditions apply

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Nominate & JOIN A COMMITTEE

Your Society needs your help to drive it forward! So why not nominate your peers, or even yourself, for a committee vacancy before 30 June 2017 and discover why being on a committee is so rewarding!

What has been your favourite part of being on a committee?

“Seeing how informal and friendly they are! And also working with the media and steering reporters away from inaccurate, misleading stories.”

Dr Channa Jayasena
Public Engagement Committee



What's the main benefit on being on a committee?

“Standing up, having a voice and challenging yourself. It gives you exposure and leadership opportunities.”
Anne Marland
Nurse Committee



GET INVOLVED

www.endocrinology.org/committee

Hurry to Harrogate! SfE BES 2017



SfE BES 2017 KEY DATES

Abstract deadline:
19 JUNE 2017

Early bird registration:
18 SEPTEMBER 2017

Get the latest info:
#SFEBS17
www.endocrinology.org/events/sfebes2017

DON'T DELAY – make your way to Harrogate this November, and join hundreds of your colleagues and friends at the **Society for Endocrinology BES conference 2017**.

This year's programme promises to be our best yet. You can look forward to exchanging knowledge, sharing experiences and strengthening collaborations with the Society's global community of endocrinologists.

LECTURE HIGHLIGHTS...

Andrew Hattersley SfE Dale Medal Lecturer	Arthur Arnold SfE International Medal Lecturer
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'MEET THE EXPERT' HIGHLIGHTS...

Opiate-induced endocrinopathy: the endocrinopathy of *Trainspotting*
Fraser Gibb

What can next generation sequencing do for you? In the clinic and in the lab
Cecilia Lindgren

SYMPOSIUM HIGHLIGHTS...

Steroids and the skeleton: glucocorticoids action in bone and cartilage

Taking a risk on love: the endocrinology of behaviour

Sex hormones through the ages: from puberty to menopause

WHAT YOU CAN LOOK FORWARD TO...

Take your next step with the 'FUTURES' SERIES

Consultant careers – escape options 'Going over to the dark side'

A session aimed at consultants establishing alternative aspects of their career

Regenerate at an APPLIED PHYSIOLOGY WORKSHOP

Tissue engineering for regenerative medicine in endocrinology

Exciting talks include:

- Deriving insulin-secreting cells from gastric tissues
- Reprogramming cells to acquire steroidogenic potential: towards therapy for adrenal insufficiency
- 3D bioprinting comes of age – from cells to organs

Gain expertise at a BONE MASTERCLASS

Cutting edge osteoporosis management and prevention of secondary fractures

A comprehensive session aimed at specialist bone endocrinologists

SETTING UP A REFERENCE LAB: WHAT YOU NEED TO KNOW!

WRITTEN BY CHANNA JAYASENA



Before hormonal assays were available, endocrine diseases were assessed by measuring the clinical damage that resulted. For instance, prior to the establishment of clinical assays for growth hormone, patients with acromegaly at Hammersmith Hospital, London, were asked to immerse their hand in a cylinder of water to measure the volume of displacement. A tattoo on the wrist marked the extent to which the patient's hand should be immersed.

We now have access to a range of hormonal assays that directly measure the activity of endocrine diseases. But it is important to consider whether further assays are required. You may recall the classic conundrum: *if a tree falls in the forest and no one is there, does it still make a sound?* Regardless of the answer, I think the solution is to develop a better way of hearing those pesky trees!

I have recently gone through the process of assay development, by setting up a novel biochemical semen reactive oxygen species (ROS) assay, which may improve the clinical information we give to couples with infertility, over and above standard semen analysis.

The process of assay development involves several stages, requiring careful thought.

'Setting up an assay service is a major undertaking, so you need to check that clinicians and/or researchers will request the test.'

1. CONSIDER FEASIBILITY

Your proposed assay should improve the clinical assessment of patients, over and above currently available tests. Five percent of couples have male factor infertility, but standard semen analysis gives limited information about sperm quality, and is highly labour-intensive. Semen ROS can be measured using a relatively straightforward enzyme assay. Furthermore, published studies suggest that semen ROS is associated with sperm DNA damage and poor fertility outcomes in couples with male infertility.

2. WILL CLINICIANS OR RESEARCHERS USE YOUR ASSAY?

Setting up an assay service is a major undertaking, so you need to check that clinicians and/or researchers will request the test. Speaking to colleagues both within and outside your hospital will answer this question. I was reassured to find that gynaecologists and urologists at my hospital were particularly interested in measuring ROS levels in semen.

3. WHAT RESOURCES DO YOU NEED TO DELIVER THE ASSAY?

A reference laboratory needs physical space (which may simply be a bench area), equipment to perform the assay, staff to undertake and report

the measurements, and necessary consumables. At this point, it is essential to sit down with a pathology scientist or lab manager to work out a solution. They will ultimately want to determine whether the anticipated number of tests performed would cover the costs of the service. This might feel a bit like 'Dragon's Den', so come prepared!

4. ASSAY VALIDATION

This process needs to be led by your colleagues in pathology. They will produce a standard operating procedure (SOP) for performing the test and operating all relevant equipment. Assay validation involves establishing several parameters relating to the test. These include measuring assay sensitivity and coefficient of variation.

5. ASSAY ACCREDITATION

Clinical laboratory results in an NHS hospital need to meet minimum quality standards. For instance, the laboratory needs to undertake regular audits to ensure that staff members are performing the assay within acceptable parameters, and that lab equipment is functioning. Your pathology colleagues will provide invaluable expertise regarding the process of certification through bodies such as the UK Accreditation Service (UKAS).

6. PERIODICAL REFINEMENT OF THE TEST

Talking to your referring clinicians will enable you to decide if factors such as reporting style, speed of reporting or elements of the assay itself require improvement. Future technological advances may enable you to make the assay method more accurate or efficient.

Historically, assay development has been the life-blood of endocrinology, by influencing the way we treat patients and understand endocrine disease itself. Setting up a reference lab is hard work but lots of fun, and is highly influential both in academic and clinical endocrinology. Join in!

CHANNA JAYASENA

Clinical Senior Lecturer in Endocrinology, Imperial College London



©Shutterstock

NIKKI KIEFFER: AWARD-WINNING NURSE

The Society's Endocrine Nurse Award recognises individuals who have demonstrated innovative and successful nurse-led initiatives in endocrinology that have advanced best practice in research, education or patient care. The winner of the inaugural award in 2017 was Veronica (Nikki) Kieffer from Leicester Royal Infirmary. Here, Nikki tells us about her achievements in the role, and in particular in leading the project to produce the Society's *Competency Framework for Adult Endocrine Nursing*.



IDENTIFYING A NEED

I was appointed as endocrine specialist nurse in Leicester in 2001, with a remit to develop an endocrine nursing service. So what did endocrine nurses do? Despite extensive searches online, I could find no guidelines or protocols to answer this question. Attendance at conferences and national nurse meetings showed that the answer was almost impossible to find. All endocrine nurses had differing job descriptions that varied between being ward-based nurses, solely undertaking dynamic tests, through to managing case loads and running nurse-led clinics.

There was no set training and most nurses seemed to have little or no background in endocrinology and had learnt in post. There was no established framework and nothing against which to measure progress or success.

Despite the lack of guidelines, over the years I developed various services including a nurse-led investigation and treatment unit, so that all dynamic testing could be done 'in house' in a timely manner. Growth hormone replacement is now nurse-led and we have a Nebido initiation service and a nurse-led assessment clinic for adrenal incidentalomas. I have also managed a virtual clinic for patients with thyrotoxicosis which has seen the number of patients managed in this way rise from 400 in 2001 to 2,500 today. In addition, I was instrumental in setting up an antenatal thyroid clinic.

Ongoing discussion with colleagues nationwide showed that, in the absence of guidelines, the standards for management of these patients varied from hospital to hospital.

FILLING THE VOID

I had a long-held desire to promote adult endocrine nursing through the development of national guidelines. My aspirations were also that we should reach out to other nursing colleagues: both our near neighbours in Europe and also worldwide.

The idea of developing nurse competencies for adult endocrine nurses (our paediatric colleagues had already developed paediatric competencies) was tabled as an agenda item at a Society for Endocrinology Nurse Committee meeting and was approved. A sub-committee was established and a call for volunteers to join this group was sent to all the Society's Nurse Members. The Royal College of Nursing declined our request for support to develop the document, but the Society for Endocrinology agreed to take it on.

A working party of eight senior endocrine nurses, under my leadership, began work on the document in 2011. Through a series of 'face to face' meetings and emails, competencies were developed for the most common endocrine problems dealt with by nurses. These covered the knowledge and skills needed by nurses to work at competent (new to endocrinology), proficient and expert level. The process took 2 years.

THE FRUITS OF OUR LABOURS

The first edition of the *Competency Framework for Adult Endocrine Nursing* was launched in March 2013 at the Society for Endocrinology BES conference. A second edition with added competencies was subsequently published in *Endocrine Connections* in 2015.¹

The document provides a model to deliver consistently high standards of nursing care, ensuring that endocrine nurses are working to a national standard and can easily identify any shortfalls in their knowledge and service provision. Patients benefit from having access to specialist nurses with an extensive and monitored knowledge base and nursing skills specific to their condition.

I was asked to present the new document to nurses at the European Congress of Endocrinology in 2013. It was greeted enthusiastically and many European nurses expressed an interest in adopting it for use in their own practice. It has now been translated into several European languages.

In 2014, I co-presented on the Framework's international implications for the nurse meeting at the Endocrine Society conference in Chicago, IL, USA.

The document's enthusiastic reception has led to its adoption by nurses in North America and Australasia. The ensuing discussion considered how we could reach out to nurses involved in endocrinology worldwide. As a result, the Federation of International Nurses in Endocrinology (F.I.N.E) has been established, to promote excellence by creating an accessible global network of endocrine nurses. This network will offer advice to our colleagues from countries around the world who do not have the opportunities that we have for support.

Leading the team in developing this unique and valuable tool for adult endocrine nurses was an exciting and rewarding experience. I am delighted to see my 'vision for the future' become a reality.

NIKKI KIEFFER

REFERENCE

1. Kieffer V *et al.* 2015 *Endocrine Connections* **4** W1–W17.

If you would like to nominate a nurse colleague for the 2018 Endocrine Nurse Award, applications are now open until 16 June 2017. For further details, please see <http://bit.ly/SFENurseAward>.

LISA SHEPHERD

NURSE COMMITTEE CHAIR



For those of you who know Nikki Kieffer, her work needs no introduction. As winner of the Society for Endocrinology's inaugural Endocrine Nurse Award, hers is an inspiring story, and in this issue we are proud to present Nikki's own article about the work that earned her the award.

Nikki describes her endocrinology nursing journey from the time she was first appointed as an endocrine specialist nurse. This is a role that many nurses fall into, and a post which was not actually the one she originally applied for. However, Nikki found her niche and has raised the standard of endocrine nursing nationally and internationally.

The *Competency Framework for Adult Endocrine Nursing* that Nikki initiated has become greatly viewed and downloaded, and is not only applicable

to and utilised by endocrine nurses in the UK but also worldwide. The Framework has provided guidance for nurses new to endocrinology as well as those who are more experienced. Providing a pathway for career trajectory, it is held in high esteem by our endocrine nurse colleagues globally and was the first step in the formation of the Federation of International Nurses in Endocrinology (F.I.N.E.).

Nikki should be immensely proud of her achievement, and she has been justifiably rewarded for her work with the Society's award. Many endocrine specialist nurses do outstanding things in practice that we do not hear about. If you know of someone who deserves to be rewarded for their work, please nominate them for this year's Endocrine Nurses Award. I hope to see many nominations, because many endocrine nurses are doing wonderful things, and their work should be recognised.

LISA SHEPHERD

GENERAL NEWS

BRITISH THYROID FOUNDATION: EVELYN ASHLEY SMITH NURSE AWARD

Evelyn Ashley Smith was a member of the British Thyroid Foundation (BTF) for many years. She made this award available to improve the care provided to patients with thyroid disorders. The BTF is now offering two awards of up to £500 to help cover conference/training expenses, including registration fees and/or travel costs.

WHO CAN APPLY?

Endocrine nurses, nurses, midwives and healthcare professionals working in the UK. Trustees of the BTF may not apply for this research award. Information about previous awards granted is available at www.btf-thyroid.org/professionals/nurse-award.

HOW TO APPLY

Please complete the application form at www.btf-thyroid.org/professionals/nurse-award and email it to nurse-award@btf-thyroid.org by 1 July 2017.



ADSHG VIDEOS

The Addison's Disease Self Help Group (ADSHG) have produced a series of videos which discuss when to give people with adrenal insufficiency an emergency injection, as well as providing a step-by-step guide to administering the injection using different types of needles and hydrocortisone. Featuring John Wass, their Clinical Panel Chair, these videos are free for all to watch at www.addisons.org.uk/videos or via their YouTube channel at www.youtube.com/addisonsuk.

They encourage you to ask your patients and their families to take a look. Knowing how and when to give an emergency injection in the event of adrenal crisis can be life-saving.

Further updates from the ADSHG on their medical resources and news of treatments for adrenal insufficiency are available via their free email service designed specifically for medics at www.addisons.org.uk/medic-news.

NEW OSTEOPOROSIS GUIDELINE

The UK National Osteoporosis Guideline Group (NOGG) (of which the Society for Endocrinology is a member) comprises a multidisciplinary group including patient representation and professionals involved in the care of people with osteoporosis. They have recently published their updated guidance on the prevention and treatment of osteoporosis. This guideline is accredited by NICE and can be downloaded from their website at www.sheffield.ac.uk/NOGG.



ROGER EKINS: INTERNATIONALLY RECOGNISED ORIGINATOR OF SATURATION ANALYSIS

Professor Roger Ekins FRS died peacefully on 26 July 2016 at almost 90 years of age, leaving a legacy of his pioneering work in saturation analysis and related methodology. His contribution as an outstanding physicist turned physiologist is immeasurable. Roger first applied physics to medicine with the determination of electrolytes. Throughout his career, he developed and emphasised the need for elegance and simplicity in quantitative measurement.

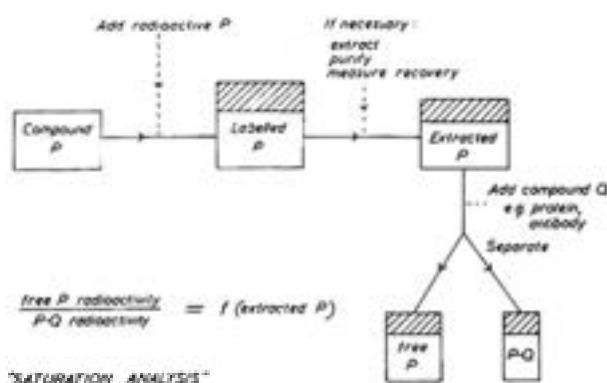
In 1960, Ekins reported the scope for analysis of thyroxine in plasma using an electrophoretic technique, a measurement of immense clinical significance. Thyroxine in serum was first extracted three times into butanol and then measured electrophoretically by the shift of the hormone from thyroid-binding globulin to the albumin fraction. He invented particular methodologies for the measurement of other compounds present in biological fluids in very small amounts (for example, vitamin B12, and insulin in blood).

He introduced the general term 'saturation analysis' in 1962, in recognition of the dependence on progressive saturation of the specific reactant involved. He developed the mathematics of the general theory of saturation assay, that is, of the factors that determine the distribution of bound and free forms of identifiable ligand across limited amounts of binding agent.

The fundamental approach is shown in Figure 1, in which P represents the compound to be assayed and Q the specific saturable reactant (binding protein, antibody or enzyme). He recognised that if Q is held constant and if P is allowed to react with Q in a range of concentrations, then the ratio of bound or reacted P to free or unreacted P is a function of the total initial concentration of P in the system.

In 1960, Rosalyn Yalow and Solomon Berson in New York, USA, had published a radioimmunoassay technique for insulin. Berson and Yalow extended their success to other hormones, such as adrenocorticotrophin, gastrin, growth hormone and parathyroid hormone, with significant discoveries in their physiology along the way. Tragically Berson died in 1972, and it was Rosalyn Yalow alone who was awarded the Nobel Prize

Figure 1. Fundamental principles of saturation analysis.



for Physiology or Medicine in 1977, an award that many in the UK thought would have been appropriate to have been shared with Roger.

Roger Ekins defined mechanisms that underlie crucial effects exerted by maternal hormones on the early development of the fetal brain. These theoretical ideas and their practical application were pursued mainly in collaboration with endocrinologists at the Middlesex Hospital in London. In 1973, Ekins, along with six other laboratories, launched the SupraRegional Assay Service to offer specialist diagnostic testing, because of their analytical expertise and a thorough knowledge of the clinical application and interpretation of the tests they provided. Over many years, he studied thyroxine in bound and free form and was prominent in the debate around the accuracy of commercial assays for free thyroxine.



Roger Ekins.

The field of endocrinology, from this start, has advanced over 60 years because hormones could be measured in biological fluids. These techniques had a revolutionary impact on medicine, creating the \$10 billion industry now called immunodiagnostics.

'Throughout his career, he developed and emphasised the need for elegance and simplicity in quantitative measurement.'

In addition, in the 1980s, Roger pioneered a technology of microarrays that eliminates the need for accurate sample volume measurement and permits simultaneous determination of the concentrations of thousands of substances, such as hormones, viruses and genes, from a drop or two of blood. This led to his receipt of a Prince of Wales Award for Innovation. The associated technology is predicted to form the basis of a \$40 billion industry within the next decade.

Roger Ekins was a genius, a highly intelligent, enthusiastic and dedicated scientist. He was in good company at The Middlesex Hospital, which was famous for several discoveries and inventions, including the identification of aldosterone, thyroglobulin autoantibodies and autoimmune disease. Many of his students excelled from his mentoring.

Professor Ekins received many awards that recognised his achievements in clinical chemistry and endocrinology, and was elected a Fellow of the Royal Society in 2001. His spirit will live on for generations, because his scientific principles continue in the basis of many analytical techniques that are so important in healthcare and medicine, with immense human and commercial value.

JOHN HONOUR & HOWARD JACOBS

PETER MOULT: OUTSTANDING PHYSICIAN AND ENDOCRINOLOGIST

Peter John Allestree Moulton qualified at the Westminster Hospital, London, in 1969. He later recalled that, during a 6-month posting as a house officer there, he was allowed 2 half days off to have a haircut – but no free nights or weekends! He then undertook an orthopaedic post at Queen Mary's, Roehampton, where he said he learnt more medicine than he had during his entire time at the Westminster.

Peter spent 18 valuable months on the Southampton medical senior house officer rotation in 1971–1972. His viva for membership of the Royal College of Physicians (MRCP) was conducted by Sheila Sherlock, who subsequently contacted him to offer him a research post in the Liver Unit at the Royal Free Hospital in London. In 1978 he was awarded his MD on the subject 'Studies of renal tubular function in patients with autoimmune liver disease', which was awarded without a viva.

Despite working in Sheila Sherlock's Liver Unit, Peter always had a yearning to be an endocrinologist, so he next took up the post of Registrar in General Medicine, Endocrinology and Chest Disease at the Royal Free.

'Most of us who worked with Peter at Barts felt that he was amongst the brightest and most gifted clinically of all the trainees and, indeed, consultants. If there was a challenging general medical problem, Peter was undoubtedly the "go to" doctor.'



Peter Moulton.

In October 1977, Peter joined the Endocrine Unit at St Bartholomew's Hospital, London (led by Mike Besser) as an MRC Training Fellow and Honorary Senior Registrar. Peter undertook meticulous research on prolactin and gonadotrophin pulsatility in patients with gonadal dysfunction. He felt that his endocrine training at Barts was superb, and that he had exposure to an amazing number of endocrine patients and pathologies.

There were a large number of endocrine trainees at Barts at the time. Several have gone on to achieve illustrious careers as teaching hospital endocrinologists, many as professors. Peter was a very good research worker, but most of all he was an outstanding clinician. Most of us who worked with Peter at Barts, myself included, felt that he was amongst the brightest and most gifted clinically of all the trainees and, indeed, consultants. If there was a challenging general medical problem, Peter was undoubtedly the 'go to' doctor.

Peter was appointed consultant at the Whittington Hospital, London, in 1981. He and John Yudkin set up the Diabetes and Endocrine Unit there. As well as being an outstanding physician and endocrinologist, he was also an

excellent teacher. He worked tirelessly and successfully until his career was cut short through ill health in 2003. He was much loved and greatly missed by his patients and colleagues at the Whittington.

Peter was a long-standing member of the Society for Endocrinology and served as the technical sub-editor for *Clinical Endocrinology*, as well as working for the *Postgraduate Medical Journal*.

A very kind and quiet man, Peter possessed a wickedly dry sense of humour and was a pleasure to have as a friend. His many interests outside medicine included a wide knowledge of computers, and expertise at carpentry and DIY. He was well read, with a passion for history, which tied in with his main hobby of collecting hammered coins.

Peter died peacefully in January 2017, after a long and uncomplaining battle with Parkinson's disease. He is survived by Jane, who was an anaesthetist, and by their two children William and Annabel. He will be much missed.

PAUL PRICE

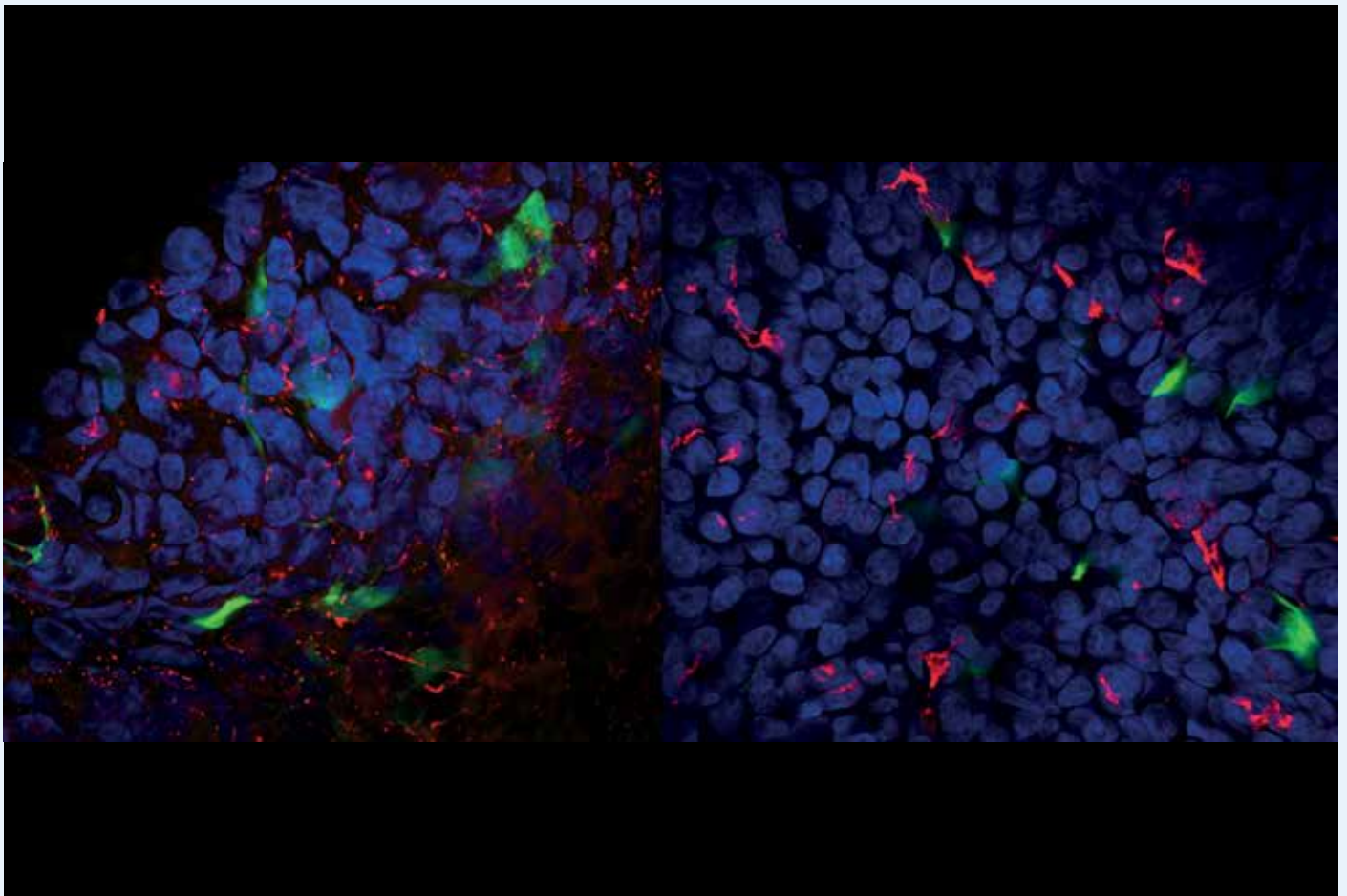
Images in ENDOCRINOLOGY

Here is the latest highlight from our journal Cover Art Competition, showcasing the best images in endocrinology.

COVER IMAGE FROM *JOURNAL OF ENDOCRINOLOGY*

MAY 2017

The images depict double immunofluorescence staining, revealing the deposition of type III collagen (left: red) and the presence of desmin-positive pericytes (right: red) in cultured rat anterior pituitary cells in the presence of S100 β -expressing folliculostellate cells (green). Removal of folliculostellate cells resulted in lower collagen synthesis and fewer desmin-positive pericytes. From Tsukada *et al.* 2016 *Journal of Endocrinology* **229** 159-170. Credit: T Tsukada and T Yashiro (Jichi Medical University School of Medicine, Tochigi, Japan).



Enter our Cover Art Competition

for *Journal of Endocrinology*, *Journal of Molecular Endocrinology* and *Endocrine-Related Cancer*.

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